

GENERAL INSTRUCTIONS :-

- (i) All questions are compulsory.
- (ii) The question paper consists of four sections A, B, C, D and E. Section A contains 5 questions of one mark each, Section B is of 5 questions of two marks each, Section C is of 12 questions of three marks each and Section D is of one question of 4 mark. E section has 3 questions of five marks each.
- (iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- (iv) Wherever necessary, the diagrams drawn should be neat and properly labelled.

SECTION – A (5x1=5 marks)

1. List any two economically important products from *Apis indica*.
2. AaBb is crossed with aabb. What would be the phenotypic ratio of the progeny? Mention the term to denote this type of cross.
3. If one strand of DNA reads :
5'- ACTGGCTATCGGCGTTTGCCT-3'
Derive the complementary strand for DNA.
4. What are the major component of seminal plasma?
5. What is the difference between Parthenogenesis and parthenocarpy?

SECTION – B (5x2=10 marks)

6. a) Sickle cell anaemia in humans is a result of point mutation. Explain.
b) Write the genotypes of both the parents who have produced a sickle cell anaemic offspring.
7. When we say "Survival of the fittest", does it mean that :
a) those which are fit only survive, or
b) those that survive are called fit?
8. Draw a schematic diagram of LAC OPERON in it's switched off position and label the following:-
i) The structural genes ii) Repressor bound to its correct position
iii) Promotor gene iv) Regultory gene
(OR)
Explain the process of charging of tRNA . Why is it essential in translation?
9. Do you think microbes can be used as a source of energy ? If yes, how?
10. Name the two special types of lymphocytes in humans. How do they differ in their roles in immune response?

SECTION – C (12x3= 36 marks)

11. a) Where in human body? Do the signals for parturition originate?
b) Why is it important to feed the new born babies on colostrum?
c) What is the exact site of fertilisation in human beings?
12. Draw a diagrammatic sectional view of human ovary showing various stages of follicles growing in it.
(OR)
Draw a labelled L.S. of Pistil showing path of pollen tube entering the embryo sac.
13. Differentiate between the oestrous cycle and menstrual cycle.
14. Give an account of sexually transmitted diseases and their impact on reproductive health.
15. Explain the following:
i) Vivipary ii) Bryophyllum iii) Terror of Bengal
iv) H.I.V. v) M.T.P vi) Scutellum
16. i) What are three types of R.N.A.?
ii) Which one of these has the shape of a clover leaf in two dimentionalstructure?
iii) How is each R.N.A. related in the information flow during protein synthesis? Explain.

17. a) List the uses of D.N.A. Fingerprinting.
 b) Explain each labelled part briefly.

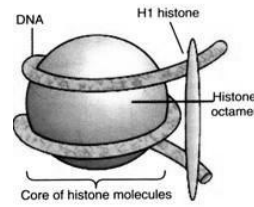
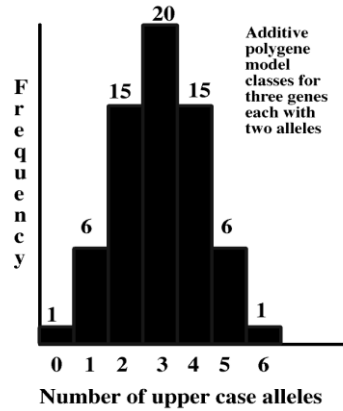
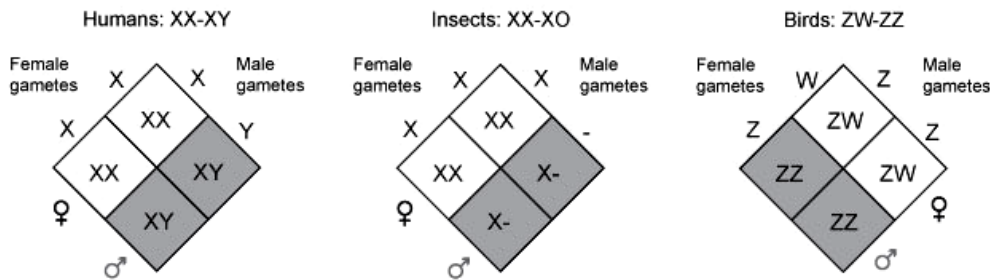


Image 4.4. Nucleosome

18. Explain the diagrammatic explanation in detail.



19. Study the crosses below and explain the phenomenon showed her



20. Give the salient features of the double -helix structure of D.N.A.
 21. Name the type of human cell HIV attacks on its entry into the body. Explain the events that occur in the cell which further lead to cause immunodeficiency syndrome.
 22. Mention the various steps involved in of plant breeding.

SECTION – D (1x4=4 marks)

23. Prabha has seen huge garbage dumps outside your school which are not being regularly disposed of by MCD. Prabha discusses the problems with school mates and decide to organize rally to spread awareness among local people about public hygiene.
- Prepare a list of your activities you plan to do to in this regard.
 - Name any two infectious diseases which may spread due to such unhygienic conditions at public place.

SECTION – E (3x5=15 marks)

24. Who proposed that DNA replication is semi conservative? How was it experimentally proved by Meselson and Stahl?

(OR)

Inheritance pattern of flower colour in garden pea and Snapdragon differs. Why is the difference observed ? Explain showing the crosses upto F2 generation.

25. Name the embryonic stage that gets implanted in human female. Explain the events that occur during this process.

(OR)

- a) Trace the development of embryo after syngamy in a dicot plant .
 b) Endosperm development precedes embryo development . Explain.
 c) Draw a diagram of a mature dicot embryo and label cotyledons , plumule, radicle and hypocotyl in it.

26. a) Give a detailed account of sewage treatment procedure.
 b) Draw the bio-gas production diagram.

(OR)

Mention the various addictive substances and give in detail :-

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|-------------------------------|-------------------------|
| i) Names of the substances | ii) Impact on the body |
| iii) Reasons of addiction | iv) Withdrawal symptoms |
| v) Treatment / Rehabilitation | |